

SEQUENCE LISTING

<110> Raskind, Wendy H.
Chen, Dong-Hui
Bird, Thomas D.
Brkanac, Zoran

<120> METHODS FOR IDENTIFYING SUBJECTS SUSCEPTIBLE TO ATAXIC
NEUROLOGICAL DISEASE

<130> UWOTL-1-21680

<140> US

<141> 2003-09-25

<150> US 60/414,816

<151> 2002-09-26

<160> 35

<170> PatentIn version 3.2

<210> 1

<211> 2910

<212> DNA

<213> Homo Sapien

<220>

<221> CDS

<222> (1)..(2091)

<400> 1

atg gct ggt ctg ggc ccc ggc gta ggc gat tca gag ggg gga ccc cgg	48
Met Ala Gly Leu Gly Pro Gly Val Gly Asp Ser Glu Gly Gly Pro Arg	
1 5 10 15	

ccc ctg ttt tgc aga aag ggg gcc ctg agg cag aag gtg gtc cac gaa	96
Pro Leu Phe Cys Arg Lys Gly Ala Leu Arg Gln Lys Val Val His Glu	
20 25 30	

gtc aag agc cac aag ttc acc gct cgc ttc ttc aag cag ccc acc ttc	144
Val Lys Ser His Lys Phe Thr Ala Arg Phe Phe Lys Gln Pro Thr Phe	
35 40 45	

tgc agc cac tgc acc gac ttc atc tgg ggt atc gga aag cag ggc ctg	192
Cys Ser His Cys Thr Asp Phe Ile Trp Gly Ile Gly Lys Gln Gly Leu	
50 55 60	

caa tgt caa gtc tgc agc ttt gtg gtt cat cga cga tgc cac gaa ttt	240
Gln Cys Gln Val Cys Ser Phe Val Val His Arg Arg Cys His Glu Phe	
65 70 75 80	

gtg acc ttc gag tgt cca ggc gct ggg aag ggc ccc cag acg gat gac	288
Val Thr Phe Glu Cys Pro Gly Ala Gly Lys Gly Pro Gln Thr Asp Asp	
85 90 95	
ccc cgg aac aaa cac aag ttc cgc ctg cat agc tac agc agc ccc acc	336
Pro Arg Asn Lys His Lys Phe Arg Leu His Ser Tyr Ser Ser Pro Thr	
100 105 110	
ttc tgc gac cac tgt ggc tcc ctc ctc tac ggg ctt gtg cac cag ggc	384
Phe Cys Asp His Cys Gly Ser Leu Leu Tyr Gly Leu Val His Gln Gly	
115 120 125	
atg aaa tgc tcc tgc tgc gag atg aac gtg cac cgg cgc tgt gtg cgt	432
Met Lys Cys Ser Cys Cys Glu Met Asn Val His Arg Arg Cys Val Arg	
130 135 140	
agc gtg ccc tcc ctg tgc ggt gtg gac cac acc gag cgc cgc ggg cgc	480
Ser Val Pro Ser Leu Cys Gly Val Asp His Thr Glu Arg Arg Gly Arg	
145 150 155 160	
ctg cag ctg gag atc cgg gct ccc aca gca gat gag atc cac gta act	528
Leu Gln Leu Glu Ile Arg Ala Pro Thr Ala Asp Glu Ile His Val Thr	
165 170 175	
gtt ggc gag gcc cgt aac cta att cct atg gac ccc aat ggt ctc tct	576
Val Gly Glu Ala Arg Asn Leu Ile Pro Met Asp Pro Asn Gly Leu Ser	
180 185 190	
gat ccc tat gtg aaa ctg aag ctc atc cca gac cct cgg aac ctg acg	624
Asp Pro Tyr Val Lys Leu Lys Leu Ile Pro Asp Pro Arg Asn Leu Thr	
195 200 205	
aaa cag aag acc cga acg gtg aaa gcc acg cta aac cct gtg tgg aat	672
Lys Gln Lys Thr Arg Thr Val Lys Ala Thr Leu Asn Pro Val Trp Asn	
210 215 220	
gag acc ttt gtg ttc aac ctg aag cca ggg gat gtg gag cgc cgg ctc	720
Glu Thr Phe Val Phe Asn Leu Lys Pro Gly Asp Val Glu Arg Arg Leu	
225 230 235 240	
agc gtg gag gtg tgg gac tgg gac cgg acc tcc cgc aac gac ttc atg	768
Ser Val Glu Val Trp Asp Trp Asp Arg Thr Ser Arg Asn Asp Phe Met	
245 250 255	
ggg gcc atg tcc ttt ggc gtc tcg gag ctg ctc aag gcg ccc gtg gat	816
Gly Ala Met Ser Phe Gly Val Ser Glu Leu Leu Lys Ala Pro Val Asp	
260 265 270	
ggc tgg tac aag tta ctg aac cag gag gag ggc gag tat tac aat gtg	864
Gly Trp Tyr Lys Leu Leu Asn Gln Glu Glu Gly Glu Tyr Tyr Asn Val	
275 280 285	

ccg	gtg	gcc	gat	gct	gac	aac	tgc	agc	ctc	ctc	cag	aag	ttt	gag	gct	912
Pro	Val	Ala	Asp	Ala	Asp	Asn	Cys	Ser	Leu	Leu	Gln	Lys	Phe	Glu	Ala	
290						295					300					
tgt	aac	tac	ccc	ctg	gaa	ttg	tat	gag	cgg	gtg	cgg	atg	ggc	ccc	tct	960
Cys	Asn	Tyr	Pro	Leu	Glu	Leu	Tyr	Glu	Arg	Val	Arg	Met	Gly	Pro	Ser	
305					310					315					320	
tcc	tct	ccc	atc	ccc	tcc	cct	tcc	cct	agt	ccc	acc	gac	ccc	aag	cgc	1008
Ser	Ser	Pro	Ile	Pro	Ser	Pro	Ser	Pro	Ser	Pro	Thr	Asp	Pro	Lys	Arg	
				325					330					335		
tgc	ttc	ttc	ggg	gcg	agt	cca	gga	cgc	ctg	cac	atc	tcc	gac	ttc	agc	1056
Cys	Phe	Phe	Gly	Ala	Ser	Pro	Gly	Arg	Leu	His	Ile	Ser	Asp	Phe	Ser	
			340					345					350			
ttc	ctc	atg	gtt	cta	gga	aaa	ggc	agt	ttt	ggg	aag	gtg	atg	ctg	gcc	1104
Phe	Leu	Met	Val	Leu	Gly	Lys	Gly	Ser	Phe	Gly	Lys	Val	Met	Leu	Ala	
		355					360					365				
gag	cgc	agg	ggc	tct	gat	gag	ctc	tac	gcc	atc	aag	atc	ttg	aaa	aag	1152
Glu	Arg	Arg	Gly	Ser	Asp	Glu	Leu	Tyr	Ala	Ile	Lys	Ile	Leu	Lys	Lys	
	370					375					380					
gac	gtg	atc	gtc	cag	gac	gac	gat	gtg	gac	tgc	acg	ctg	gtg	gag	aaa	1200
Asp	Val	Ile	Val	Gln	Asp	Asp	Asp	Val	Asp	Cys	Thr	Leu	Val	Glu	Lys	
385					390					395					400	
cgt	gtg	ctg	gcg	ctg	ggg	ggc	cgg	ggg	cct	ggc	ggc	cgg	ccc	cac	ttc	1248
Arg	Val	Leu	Ala	Leu	Gly	Gly	Arg	Gly	Pro	Gly	Gly	Arg	Pro	His	Phe	
				405					410					415		
ctc	acc	cag	ctc	cac	tcc	acc	ttc	cag	acc	ccg	gac	cgc	ctg	tat	ttc	1296
Leu	Thr	Gln	Leu	His	Ser	Thr	Phe	Gln	Thr	Pro	Asp	Arg	Leu	Tyr	Phe	
			420					425					430			
gtg	atg	gag	tac	gtc	acc	ggg	gga	gac	ttg	atg	tac	cac	att	caa	cag	1344
Val	Met	Glu	Tyr	Val	Thr	Gly	Gly	Asp	Leu	Met	Tyr	His	Ile	Gln	Gln	
		435					440					445				
ctg	ggc	aag	ttt	aag	gag	ccc	cat	gca	gcg	ttc	tac	gcg	gca	gaa	atc	1392
Leu	Gly	Lys	Phe	Lys	Glu	Pro	His	Ala	Ala	Phe	Tyr	Ala	Ala	Glu	Ile	
	450					455					460					
gct	atc	ggc	ctc	ttc	ttc	ctt	cac	aat	cag	ggc	atc	atc	tac	agg	gac	1440
Ala	Ile	Gly	Leu	Phe	Phe	Leu	His	Asn	Gln	Gly	Ile	Ile	Tyr	Arg	Asp	
465					470					475					480	
ctg	aag	ctg	gac	aat	gtg	atg	ctg	gat	gct	gag	gga	cac	atc	aag	atc	1488
Leu	Lys	Leu	Asp	Asn	Val	Met	Leu	Asp	Ala	Glu	Gly	His	Ile	Lys	Ile	
				485					490					495		

act gac ttt ggc atg tgt aag gag aac gtc ttc ccc ggg acg aca acc	1536
Thr Asp Phe Gly Met Cys Lys Glu Asn Val Phe Pro Gly Thr Thr Thr	
500 505 510	
cgc acc ttc tgc ggg acc ccg gac tac ata gcc ccg gag atc att gcc	1584
Arg Thr Phe Cys Gly Thr Pro Asp Tyr Ile Ala Pro Glu Ile Ile Ala	
515 520 525	
tac cag ccc tat ggg aag tct gtc gat tgg tgg tcc ttt gga gtt ctg	1632
Tyr Gln Pro Tyr Gly Lys Ser Val Asp Trp Trp Ser Phe Gly Val Leu	
530 535 540	
ctg tat gag atg ttg gca gga cag cct ccc ttc gat ggg gag gac gag	1680
Leu Tyr Glu Met Leu Ala Gly Gln Pro Pro Phe Asp Gly Glu Asp Glu	
545 550 555 560	
gag gag ctg ttt cag gcc atc atg gaa caa act gtc acc tac ccc aag	1728
Glu Glu Leu Phe Gln Ala Ile Met Glu Gln Thr Val Thr Tyr Pro Lys	
565 570 575	
tcg ctt tcc cgg gaa gcc gtg gcc atc tgc aag ggg ttc ctg acc aag	1776
Ser Leu Ser Arg Glu Ala Val Ala Ile Cys Lys Gly Phe Leu Thr Lys	
580 585 590	
cac cca ggg aag cgc ctg ggc tca ggg cct gat ggg gaa cct acc atc	1824
His Pro Gly Lys Arg Leu Gly Ser Gly Pro Asp Gly Glu Pro Thr Ile	
595 600 605	
cgt gca cat ggc ttt ttc cgc tgg att gac tgg gag cgg ctg gaa cga	1872
Arg Ala His Gly Phe Phe Arg Trp Ile Asp Trp Glu Arg Leu Glu Arg	
610 615 620	
ttg gag atc ccg cct cct ttc aga ccc cgc ccg tgt ggc cgc agc ggc	1920
Leu Glu Ile Pro Pro Phe Arg Pro Arg Pro Cys Gly Arg Ser Gly	
625 630 635 640	
gag aac ttt gac aag ttc ttc acg cgg gcg gcg cca gcg ctg acc cct	1968
Glu Asn Phe Asp Lys Phe Phe Thr Arg Ala Ala Pro Ala Leu Thr Pro	
645 650 655	
cca gac cgc cta gtc ctg gcc agc atc gac cag gcc gat ttc cag ggc	2016
Pro Asp Arg Leu Val Leu Ala Ser Ile Asp Gln Ala Asp Phe Gln Gly	
660 665 670	
ttc acc tac gtg aac ccc gac ttc gtg cac ccg gat gcc cgc agc ccc	2064
Phe Thr Tyr Val Asn Pro Asp Phe Val His Pro Asp Ala Arg Ser Pro	
675 680 685	
acc agc cca gtg cct gtg ccc gtc atg taatctcacc cgccgccact	2111
Thr Ser Pro Val Pro Val Pro Val Met	
690 695	

```

aggtgtcccc aacgtccctt ccgccgtgcc ggcggcagcc ccacttcacc cccaacttca 2171
ccacccccctg tcccattcta gatcctgcac ccagcattc cagctctgcc cccgcgggtt 2231
ctagacgccc ctccaagcg ttcttggcct tctgaactcc atacagcctc tacagccgtc 2291
ccgcgttcaa gacttgagcg gagcccgata ttctccctga ccttagcggt ctggactctg 2351
ccccaatcgg gtccagagac cacaccacta accatcccca actccatggg gttcgagact 2411
ccatcttggg agttctgtgc ctccccccag accccgcccc tggggaaata gcctcacggg 2471
gttggctggt ccagactcag gttccagaac agccctcggc ctccgaggct cccgcctcc 2531
actctagtct tagatgagtg ggaggcgtgc cccctcctc cagtacgtcc cgctgctgtg 2591
ctctggggat ttctgggata tatggaggat tctttcccca gaggtccca atcagctttt 2651
gttctagact tccccatccc gaagccatca cttctccccg cagcccgctt gccgtgcatg 2711
gctcctgtct ggctcggacc caccccaact ctccccagt cctgccactc tctgggactc 2771
tctcctccc ctctcttcc cttagcctct cccaccggc cacagctgct ggagaataaa 2831
tttgggatgc tgatgaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2891
aaaaaaaaaa aaaaaaaaaa 2910

```

```

<210> 2
<211> 697
<212> PRT
<213> Homo Sapien

```

<400> 2

```

Met Ala Gly Leu Gly Pro Gly Val Gly Asp Ser Glu Gly Gly Pro Arg
1           5           10          15

```

```

Pro Leu Phe Cys Arg Lys Gly Ala Leu Arg Gln Lys Val Val His Glu
          20          25          30

```

```

Val Lys Ser His Lys Phe Thr Ala Arg Phe Phe Lys Gln Pro Thr Phe
35          40          45

```

```

Cys Ser His Cys Thr Asp Phe Ile Trp Gly Ile Gly Lys Gln Gly Leu
50          55          60

```

Gln Cys Gln Val Cys Ser Phe Val Val His Arg Arg Cys His Glu Phe
65 70 75 80

Val Thr Phe Glu Cys Pro Gly Ala Gly Lys Gly Pro Gln Thr Asp Asp
85 90 95

Pro Arg Asn Lys His Lys Phe Arg Leu His Ser Tyr Ser Ser Pro Thr
100 105 110

Phe Cys Asp His Cys Gly Ser Leu Leu Tyr Gly Leu Val His Gln Gly
115 120 125

Met Lys Cys Ser Cys Cys Glu Met Asn Val His Arg Arg Cys Val Arg
130 135 140

Ser Val Pro Ser Leu Cys Gly Val Asp His Thr Glu Arg Arg Gly Arg
145 150 155 160

Leu Gln Leu Glu Ile Arg Ala Pro Thr Ala Asp Glu Ile His Val Thr
165 170 175

Val Gly Glu Ala Arg Asn Leu Ile Pro Met Asp Pro Asn Gly Leu Ser
180 185 190

Asp Pro Tyr Val Lys Leu Lys Leu Ile Pro Asp Pro Arg Asn Leu Thr
195 200 205

Lys Gln Lys Thr Arg Thr Val Lys Ala Thr Leu Asn Pro Val Trp Asn
210 215 220

Glu Thr Phe Val Phe Asn Leu Lys Pro Gly Asp Val Glu Arg Arg Leu
225 230 235 240

Ser Val Glu Val Trp Asp Trp Asp Arg Thr Ser Arg Asn Asp Phe Met
245 250 255

Gly Ala Met Ser Phe Gly Val Ser Glu Leu Leu Lys Ala Pro Val Asp
260 265 270

Gly Trp Tyr Lys Leu Leu Asn Gln Glu Glu Gly Glu Tyr Tyr Asn Val
275 280 285

Pro Val Ala Asp Ala Asp Asn Cys Ser Leu Leu Gln Lys Phe Glu Ala
290 295 300

Cys Asn Tyr Pro Leu Glu Leu Tyr Glu Arg Val Arg Met Gly Pro Ser
305 310 315 320

Ser Ser Pro Ile Pro Ser Pro Ser Pro Ser Pro Thr Asp Pro Lys Arg
325 330 335

Cys Phe Phe Gly Ala Ser Pro Gly Arg Leu His Ile Ser Asp Phe Ser
340 345 350

Phe Leu Met Val Leu Gly Lys Gly Ser Phe Gly Lys Val Met Leu Ala
355 360 365

Glu Arg Arg Gly Ser Asp Glu Leu Tyr Ala Ile Lys Ile Leu Lys Lys
370 375 380

Asp Val Ile Val Gln Asp Asp Asp Val Asp Cys Thr Leu Val Glu Lys
385 390 395 400

Arg Val Leu Ala Leu Gly Gly Arg Gly Pro Gly Gly Arg Pro His Phe
405 410 415

Leu Thr Gln Leu His Ser Thr Phe Gln Thr Pro Asp Arg Leu Tyr Phe
420 425 430

Val Met Glu Tyr Val Thr Gly Gly Asp Leu Met Tyr His Ile Gln Gln
435 440 445

Leu Gly Lys Phe Lys Glu Pro His Ala Ala Phe Tyr Ala Ala Glu Ile
450 455 460

Ala Ile Gly Leu Phe Phe Leu His Asn Gln Gly Ile Ile Tyr Arg Asp
465 470 475 480

Leu Lys Leu Asp Asn Val Met Leu Asp Ala Glu Gly His Ile Lys Ile
485 490 495

Thr Asp Phe Gly Met Cys Lys Glu Asn Val Phe Pro Gly Thr Thr Thr
500 505 510

Arg Thr Phe Cys Gly Thr Pro Asp Tyr Ile Ala Pro Glu Ile Ile Ala
515 520 525

Tyr Gln Pro Tyr Gly Lys Ser Val Asp Trp Trp Ser Phe Gly Val Leu
530 535 540

Leu Tyr Glu Met Leu Ala Gly Gln Pro Pro Phe Asp Gly Glu Asp Glu
545 550 555 560

Glu Glu Leu Phe Gln Ala Ile Met Glu Gln Thr Val Thr Tyr Pro Lys
565 570 575

Ser Leu Ser Arg Glu Ala Val Ala Ile Cys Lys Gly Phe Leu Thr Lys
580 585 590

His Pro Gly Lys Arg Leu Gly Ser Gly Pro Asp Gly Glu Pro Thr Ile
595 600 605

Arg Ala His Gly Phe Phe Arg Trp Ile Asp Trp Glu Arg Leu Glu Arg
610 615 620

Leu Glu Ile Pro Pro Pro Phe Arg Pro Arg Pro Cys Gly Arg Ser Gly
625 630 635 640

Glu Asn Phe Asp Lys Phe Phe Thr Arg Ala Ala Pro Ala Leu Thr Pro
645 650 655

Pro Asp Arg Leu Val Leu Ala Ser Ile Asp Gln Ala Asp Phe Gln Gly
660 665 670

Phe Thr Tyr Val Asn Pro Asp Phe Val His Pro Asp Ala Arg Ser Pro
675 680 685

Thr Ser Pro Val Pro Val Pro Val Met
690 695

<210> 3
<211> 25301
<212> DNA
<213> Homo Sapien

<400> 3
agcccccgga gtgggtgtgt gcacgtgtgg ggggcgggga gggaggacat ttgtcccgtg 60
tctccgggag gggagcgctt ttaagccgaa accccgccct ctcggtcgtc ctggcaacgc 120
ctcccccaac ccggggctcc cacatttcag caggtgccgg agctggagct cccaccgcgc 180
ccgcccgtgc ctccggctgc cggcgccctt gcctttggct ctctctcccc actcgcccgc 240
tccccctggc ggagccggcg cgcccggggt gccgctccct gcctggcgcg ctccgcacct 300
ggaggtgcct tgcccccttc ctgcccacct cggaatttcc ctgtggctcc tttgatcctt 360
cgagtctcca gtcctctctc ctccacctg tttcccccaa gaaaggcagg atcctgggtcc 420
ctgctacgtt tctggggcca tggctggtct gggccccggc gtaggcgatt cagagggggg 480
accccgggcc ctgttttgca gaaagggggc cctgaggcag aaggtgggtcc acgaagtcaa 540
gagccacaag ttcaccgctc gcttcttcaa gcagcccacc ttctgcagcc actgcaccga 600
cttcattctg tgagggaagg gggctggggg actgggggac gaggggacta ggggtgcaga 660
ctcctatcac gccgaccctt gtggaaggaa gaaggagggg gctgtagtcc cgactcccag 720
gttctaggat ggccagggaa cgctgggagc ttcgactcct gggtttcagt gaggaggagg 780
ctggttcctg gagtgtctgg tccgagggag gaggaggctg gaggacagag gtcctggagt 840
cttgggtctg agggaggaag ggcctggggg gctgggagcc tggattcctg ggtctgaagg 900
aggaagaaac tgggggctga actccagtct aagggaagaa gggctggggg ccaaatttc 960
tgggttctag aaagaggagg tggccggggc ttggacacct gggccctgcg ggaggagggt 1020
cagagagcgc agggccctg tggctcgag aggttggggg tccaggtacc ctttctgca 1080
ctgacctagg atccctgact ctccagggg tatcgaaaag cagggcctgc aatgtcaagg 1140
taagagctgg ggaccggggc tcctgggacc ctgaggagg tggaggctgg ggccccacag 1200
ctgaggctgc ttgacacacg tgttctctgg tcccagaga ggcgcggggg agcccggggc 1260

ggggggtgtg gcagagacac agcctgtggt ggggagggag ctttgatggt ggggccaccg	1320
cggaggtggt gctggggggcc cctccctcgg cgggctccag gtggggacag atatttgag	1380
aatctgttgc catgggaaca tggagatttg gaaaagggga gctgaagggg ggaaggggga	1440
gggggctgga gatgcaaagt cagagccccc ccccaccca ggctgccgtc gccatgacaa	1500
caccagccgt cctaggcagg ggcaggccgg gtggggtcac caatgggcga gtgggggccc	1560
ggcggggccc gcagttctgg ggggcgggag aggggggcga gtccttgagc accagctgct	1620
actgctgaga acagagttag tcaggggtgg gggcgggccc gcagcagcgc ccccagactc	1680
acttctgccc aagttgctgc ttcctgggct gcgtctgaag atatttcggg ttcgctctt	1740
tgaatctgtc tgcctctctc ctggctttct gatctccgtc cgtgggcctg tgtctgtttg	1800
tcaatgggat cctattttct ttctctcttt ttccatctcc ctccctgag ctctgtgctc	1860
tgtgtctctc tgtaagtctc tgcgtctctg tttctgactc tgagcccatc tcttgggttt	1920
ctgtctcctg cttctctctc tggcctccga ttttctctct gttggactct ctgtgttgag	1980
atccctctct ttctggtttt ctcagtgtcc gagttccgct ctctctttcc aattttctgt	2040
ctgctggggg ctcccgtgg actaatccat gcctccgtct gtgtctctat gattttcatc	2100
tatagtctgc agctttgtgg ttcacgacg atgccacgaa tttgtgacct tcgagtgtcc	2160
aggcgtggg aaggggcccc agacggacgt gagtgtcgg acacctggtt ctctcctcg	2220
ggccgtgccc ccgccctcac cccctcggcg tccgtcccaa tttctcctgc tatttttatg	2280
gctgggaggg gaggggggct ggagagatag ggggagctat ctggcccaga ttccttgccc	2340
ttggcctgga aagggggaat gcgaggggga ctgacaggct ggggacacgg gtggggcaca	2400
gagaggaggc cggggtgagg agactgaaga tgggtgctgc cgggggtggg ctgtgatcca	2460
ggggtgaagg gatttaaaaa ttgagagctg aggggcacac ggagaaaaat atcagtgcag	2520
gtgcggagat gccaacataa gacagaggga atctcaggga gaggaacaga gacagaagaa	2580
gacagagacc taggagagac tgaagctgag gcagagagag agagagatgg agcagagaaa	2640
gaaccaggga gaaagagagg aatttgagg caccaaaaga tggacagaga aactccaaga	2700
gacggagaca cagacacctg gagaaagaga ctaaaataga aaatgggtgga tacagacaac	2760
agcttaggag atgctgagag gagaccagg gaagtccac agtacacttg cacacatgtg	2820

cgtgcatgta cagatgcccc tgatcatcaca gatgtgcagc acgcagagac acacagcctc	2880
tccccacccc ctctctctcc atcagagggt cacaagacca gtcaaccctg agtgcccatt	2940
cccgttccct tttctgcttt atctctgagc ctcagtttcc tcctctataa aatggggctg	3000
atgatctagc attgaccaac agaactgttt acagtgcagg aagcattctg tacatgcact	3060
gtccaatagg cagccaccag ctccatgtag ccagtgcagc cttgaaacag ggcgactgtg	3120
gctgaggatt agaaattcca tttcgtgtca tttgaattgg cttaaatttt ttttttttat	3180
ttttattttt tgagacggag tcgcgctctg ttgccaagc tggagtgcag tggcgagtc	3240
tcagctcaat gcaacttccg tttcccaggt tcaagcaatt cttctacctc agcctcctga	3300
gtagctggga ctacaggcgc atgccaccac accccgctaa ttttttttgt attttttagta	3360
gagatggggg ttcacatgtg tggccagggt ggtctcgaac tcctgacctt gtgatccacc	3420
cgctcggcc tcccaaagtg ttgggattac aggcgtgagc caccgcgccc ggcagaactg	3480
acttaaattt aaacagccac atgtagttag tggccaccaa atgggacagc acacatctgg	3540
acacttccag gcttgttttg aagtcagggt ggttcagagt ttcgcccagg gtttgacaca	3600
agatcggaga cagttttatg atgtacagat ggagagagag gcagagagag agagatccac	3660
agaagtccat gaggcgtttt accaccctct cagctgaaaa taacagaagt ctacatagaa	3720
gatgtgactt catagaacat atattgagca ccactgtcta ccagcacgtg tatgtgattg	3780
atgaccccc tcgtccactc acctccgcca ccaacaccag ataagtctga tgcattccagt	3840
gctcattggg tacactcatc aagatttttt tttttgtttt ttgcctgtaa tcccagctac	3900
tcgggagggt gaggcagaat tgcttgaacc tgagcggcag aggttgcagt gagccaagat	3960
cacgccactg cactccagcc tgggtgacag agcaagactt tgtcttgga aaaaaaaaaa	4020
agattttttt ttgtttttgt tgttttgttt gatatttgggg tatttttttag atggagtttc	4080
actctgtcac ccaggctgga gtgcactggg gcaatcttgg ttcactgcaa cctctacctc	4140
ccaggttcaa gcgattctca tgcctcagcc tcccagtag ctgggactag aacaggcatg	4200
agccaccatg gccggctaatt ttttatattt ttagtagaca gggtttcatc atgctggcca	4260
agctgggtctt gctcctgacc tcacgtgatc caccacctc ggcctcccaa agtgctggga	4320
ttacaggcgt gagccaccgc acccagccga tttttggggg tttttgagac aggggtccac	4380

tctgtcacct agactggagt acagtgatgg gatcatagct cactgcagcc ttgaattctc	4440
caggctcaag tgctcctcct gcccagctt ctcaagtagc tgggactata ggcaacaagcc	4500
acaacaccta gctaattaaa aaaaaatggt tttgtagaga tggagtctca ctactatat	4560
tgcccaggct ggtcttcaac tcctggctc actcgattct cctgcctcag cctcccaaaa	4620
tgatgggatt acaggcgtga gccactgcac ctggcctcaa gtattttgta tacagtatag	4680
gttgatcca cacaacagct tatttgggta tttttccctg tctatctggt ttgaatcca	4740
gctccaccac ttttggttc tgtgacattt cctgaggtta tttacctctc tgcacttggt	4800
gaattccttg tttgtaaagt ggagatgata attatgctca ctatggattg ttttgaagat	4860
ttagtgagtc agacatttgg gatggtttct gacacatagc aagagccaaa atattatttt	4920
ttattcttgt taaaattatt attatgacca atgaggaaac gagtgaatag tgagaaggag	4980
atctttcctc tgcatcactc ggggggtttt ttgtttttgt ttttttttgc tgttgagaca	5040
gggtctcact ctgttgccca ggctggagtg caatagtgtc atcactgctc actgcagtct	5100
tgacctccgg ggctcaagtg attcactgct ggcagttgat cttcttaaaa gtaacatgca	5160
ggccaggcac agtggctcac gcctgtaatc ccaacacttt gggagaccga ggcgggtgga	5220
tcacctgagg ttgggagttc gagaccagcc tgaccaacat ggagaagcca cgtgtctact	5280
aagaatacaa aattagctgg gcgtggtggc acacgcctgt aatcccagct actcaggagg	5340
ctgaggcagg agaatcactt gaaccagga ggcggaggtt gcagtgagcc aagattgcgc	5400
cattgcactc cagcctgggc agcaagaaca aaactctgtc tcaaaaaaaaa aaaaaaaaaa	5460
aaaaaaaaaa aaaaaaaaaa ggtaacatgc cttgaccagg catggtggct catgcctgta	5520
atcccagctc tttgggaggc tgaggcaagc ggatcacgag gtcaggagat ccaaaccatc	5580
ctggctaacg cggtgaaacc ccgtctctac taaaaataca aaaaattagc caggcacggt	5640
ggcacgcgcc tgtagtcca gctactcggg aggctgaggc aggagtatcg cttgaacccc	5700
ggaggcagag gttgcagtga gccgagatca caccactgca ctctagcctg ggcgacagag	5760
tgagactcca tctcaaaaaa aaaaaaaaaa aaaaagtaac atggatcaag atttggaag	5820
aatgatttca tttagtcccc agggagggca catgccccca cttttcaagc ggtaaattctg	5880
aggctttgaa aaggggcagg cgtggtgagg ccacctagct gggtagggga tagaggcaag	5940

atttgaactc	tgatgtatgt	aaccacagcc	tccgtgctgt	ctccttttta	acagcgacgt	6000
tcacttttga	gaataagaac	agcagcctct	gtctgtggat	ggtttgtgtg	tcaggcagcc	6060
tgctgagaac	cttcacacac	agcatcttat	ttagtgcggc	aggaaccctt	tgagttaggg	6120
tcagcggaga	tatttagaag	cccagcacat	tgaaaaggat	cctggaaact	gccaacaccc	6180
tcctctaccc	aaatatatat	tcaaactaga	aaccccacta	acatagatga	aaatccaaga	6240
atggcctaaa	tgttcaccct	gtgataatcc	ttttaatgga	ttcttagaat	caagttattt	6300
aacaagcaga	tattgtcccg	ggggtagtgg	gtggcagggg	agaaggagaa	gcttcactga	6360
tgacctgcat	tcttgcttaa	tggactctgg	aaatttagca	ttgcttcaaa	atatagatta	6420
tttattttcca	cttgacagag	gaggatgctg	aggctcaaaa	ctgggaatga	acttgcccca	6480
aatcacacag	ctgagaagcg	gcctagctct	tacttacatt	cagggtatg	tagggacttc	6540
aataaaatcc	ctaacaataa	ccacagtaat	agtattggga	gcatctaacg	tggtaggcac	6600
agctatgttt	tgtacaccaa	ttattttatt	taggcctcct	gggttcctat	tataactgag	6660
aggtcatggt	ctccattcca	cctggagctc	agagaaggca	taccatatgg	acactgacag	6720
aagctgccag	tgaaggagct	ggggttcagg	gtggcccaca	agtcctcaaa	taataacttg	6780
tgggagttgg	ggggatggga	actatgggag	gttggaagct	cctgcctcct	tcatgttctg	6840
cccagatatc	atttggtcag	cgaggccccc	ctgccactcc	cctgcacac	agttttgttg	6900
ttgttgttgt	tgtttgagac	agaatcttgc	tctgtcatcc	aggctggagt	gcagtggcac	6960
aatcttggct	cactgcaacc	tcggcctcct	ggattcaagc	aattctcatg	cctcagcctc	7020
ctgagtagct	gggattacag	gcatgcacca	ccatgtccgg	ctaatttttg	tatttttagt	7080
agagacagag	ttttgccatg	ttgcctagcc	tgggtccggaa	ctcctgagct	caaggcaatc	7140
cgcccacctc	ggcctcccaa	agtgctggga	ttacaggcat	gagccaccgc	accagccag	7200
gaccaccgta	tttaaaattt	caatccccca	acttctggtg	gtcccatcc	ctgcctcatt	7260
ttttctccag	agcaccatt	accaaccatc	aaactatatg	ttttatttat	ttaccatggt	7320
tacattctgt	atccctccat	taggaagtaa	actccatgtg	aaaagaggt	ttttttttt	7380
catttgttta	atgctgggtc	cccacaccaa	gaacagtccc	tggcacacag	caggtgctca	7440
atgattattg	gtacatagag	tgaaagagat	ggagcctcag	gctgacctag	agagcaaggc	7500

aggaggaaaa	gataaaaggg	cccctcccct	ggggtttttag	gaccctccca	acgcccccta	7560
agccagtctt	ctctgcccc	aggacccccg	gaacaaacac	aagttccgcc	tgcatagcta	7620
cagcagcccc	accttctgcg	accactgtgg	ctccctcctc	tacgggcttg	tgaccagggg	7680
catgaaatgc	tctgtgagt	gacctggggc	ttgccagggc	ccttccaaag	cgcccgggtct	7740
gggttccggg	aatgcccgg	gatgggggtg	ggggtgagtg	cttggttg	ggcgggggcc	7800
tgaggtgcta	ccgcagctt	tcccctccag	gctgcgagat	gaacgtgcac	cggcgctgtg	7860
tgcgtagcgt	gccctccctg	tgcggtgtgg	accacaccga	gcgcgcggg	cgctgcagc	7920
tgagatccg	ggctcccaca	gcagatgaga	tccacgtaac	tggtgaggcc	ccgccccctc	7980
gcctggcccc	gccccctccc	caagtgtgag	gcggggctga	ccaaggcac	ttgtgctggc	8040
ccagccctac	cccaaagatg	gggccacgcc	tctttctatg	gtcacgcca	cactcctgac	8100
cccaccccaa	aggccgagca	caccagcca	taccctttt	ggctcgaagc	ccgcctcca	8160
acctggcttc	ttgcaacttt	ctgcacctgt	taatgacttt	gactttcttt	ttttttttgg	8220
gacggagttt	cgctcttggt	gctcaagctg	gagtgcaatg	gcgcgatctc	ggctcactgc	8280
aacttccgcc	tcccgggttc	aagtgattct	cctgcctcag	cctcccagat	agctgggatt	8340
acaggcgcg	gtcaccaagc	ccggctaatt	ttttgtat	ttagtacaaa	cggggtttca	8400
ccatgttagc	caggctggtc	tcgaactcct	gaccccaggt	gatcccctcg	actcggcctc	8460
ccaaagtgct	gggattaaca	ggcgtgagcc	accgcgcctg	gccaatggct	ttcttttttg	8520
tttttat	atgtttat	ttttgagatg	gagtcttgct	ctgtcaccca	ggctggagtg	8580
cagtggtgca	atcttggtc	actgcaatct	ctgcctccgg	ggttcaaggg	attctcctgc	8640
ctcagcctcc	cgagtagctg	gaattacagg	cgctgccac	cacatccggc	taattttttt	8700
ttttttttt	ttttgagaca	agatctcgct	ctgttgcca	ggctggagtg	cagtagcatg	8760
atctcagctc	actgcaacct	ccgcctctca	ggttcaagcg	attctcctgc	ttcagcctcc	8820
tgagtagctg	ggactacagg	tgcatgacac	tgacccagc	tcatttttgt	atttttagta	8880
gagacaggg	ttcaccatgc	tagccaggct	ggtctggaac	tcctgacctc	aggtgatccg	8940
ccgcctccg	cctcccaaag	tgctgggatt	acaggggtga	ggaccgtgcc	cggcaatggc	9000
tttctgggta	taaggatctt	gagaaggag	agtacctggt	tctgaggag	gctgtgggtc	9060

agtactggtg	acatggccag	ggtccaaact	ctggttccta	atggagagaa	gggctctgga	9120
tctgatttca	gggtcactgg	ttgcgaaag	ggctctatgc	cctgtcttct	gggttctgga	9180
gaggtaagaa	gtcatgagaa	acgagactga	gagcttgga	ttcttttttt	tttttttttg	9240
agacggagtc	tcgctgtgac	gccaggctg	gagtgcagtg	gcgtaatctc	ggctcactgc	9300
aagctccgac	tcctgggttc	acgtcattct	cccgcctcag	cctcctgagt	agctgggacc	9360
acagacacct	gccaccacgc	ccagctaatt	tttttttttt	tttgtatttt	tagtggagac	9420
ggggtttcac	cattcacagg	atggtctcga	tctcctgacc	ttgtgatccg	ccgccttg	9480
cctcccaaag	tgctgggatt	acaggcatga	gccgccgtgc	ctggccaagc	ttggaactct	9540
tgattgctga	ctggaggagg	gctgggagcc	ccttcctgga	tctctaacc	gtcacactct	9600
tcctcactcc	ccgttttagtt	ggcgaggccc	gtaacctaat	tcctatggac	ccaatggtc	9660
tctctgatcc	ctatgtgaaa	ctgaagctca	tcccagaccc	tcggaacctg	acgaaacaga	9720
agaccgaac	ggtgaaagcc	acgctaaacc	ctgtgtggaa	tgagaccttt	gtgttgtag	9780
tctggggtgc	aggaaggca	atgacagctg	acagagaatg	atctgagggt	cctagtggcc	9840
cccagagagc	agctgatggg	aggggttagg	atagaggga	cccagaaaag	ggcagaagaa	9900
gatggtggga	aaagggaata	gagtgattga	gggagtggga	tggagataca	gaaacggaga	9960
gacagccaga	ccactgtata	attagtctcc	attgaagccc	ccaactttag	agttagacag	10020
agatgagaga	gagaagagag	agtctcagaa	gaggcagaaa	cccaaagaga	gacacagatg	10080
gagagggagg	ggagaagatg	ggggatggca	gggagacaga	gatcagttga	caggaagaca	10140
gagtgataga	gaccagaga	ggagagaagg	gtacagagac	tcagagagag	agatctcgag	10200
agacaagaga	cagagatggg	aaggggcgga	gaatgcagga	ggaagggaga	ggaagagctc	10260
tctaggttta	cttcaggccc	caaagcccta	gctggagaga	gagcccggt	gggaaggcca	10320
gaggtcggag	accgacaaag	caggagagga	gccccagctg	gctgggtttg	ccccacctc	10380
cagcaccaag	gatggggaac	cgaggggagc	catgagctcg	gctctgcacc	ccatccaccc	10440
caccttcctg	cagcaacctg	aagccagggg	atgtggagcg	ccggctcagc	gtggaggtgt	10500
gggactggga	ccggacctcc	cgcaacgact	tcattggggc	catgtccttt	ggcgtctcgg	10560
agctgctcaa	ggcgcccgtg	gatggctggt	gaggagcagg	gctggggcct	ggggatggag	10620

cgcaatatta	ccatctccat	ctgtgtgtgg	tctctctcct	ccaggccact	gtccttccct	10680
ctgcctccca	gcatgcgcac	acacacacac	acacacacac	acacacgcac	acacacgcac	10740
acacccctct	ctctctattc	ttctcttctt	ctccccctcc	tttctccctc	tccctctctt	10800
tttatctcac	tctttctctc	ttccatctct	gtgtccgtct	ctctgtgtct	ctttcctccc	10860
ttccaatgtc	tttgctctct	ccatgggtgc	cccatccccg	ctgcccgcct	ctggtctccg	10920
tctgtatgtc	aggtacaagt	tactgaacca	ggaggagggc	gagtattaca	atgtgccggt	10980
ggccgatgct	gacaactgca	gcctcctcca	gaagtgtgag	gtaccagac	cctggcttcc	11040
tcaagggagc	ccagcccagc	ctcccacggt	tcagagctgg	cctttccttc	cacccctgag	11100
tgcccgcctg	tcttgggact	acagttccca	gaagacccta	ggactccctc	ctctgctctt	11160
ctaggggact	cgagccccag	ggtctgatgg	gaattatagt	tcctatctat	cgccatggct	11220
tgaggggtact	agggggccacc	agcccctggt	ctagggcgat	cccctgcac	tcttgggacc	11280
ctgactctct	ctttcttttc	tcccaggctt	gtaactaccc	cctggaattg	tatgaggtga	11340
gtagaaccag	ggcgttgaat	ggaggcagtt	tttgccctact	tctctgattt	cttattcctc	11400
ctctgacttc	tgtcttcaat	tccccacaca	tgagttgagc	acacatttgt	gctaggcctg	11460
tcttgtgctt	gctgaataat	ccaggatcca	gagatgaatc	tgaccctcaa	gcaactctcc	11520
aaggtaggga	cacagtcaca	gatacttaaa	atacaggaag	atgtgctaaa	ttagaggtag	11580
cccagggcac	tgaagaggcc	taacggaggc	actaatccag	cctgggggag	ggtggtcagg	11640
gaggacttcc	ctgaggaggt	gacgcctgaa	ttgattcttg	aggtttttta	aaatttttta	11700
atttattttt	atttttattt	ttatttttat	ttctgtcgcc	caggctggag	tgcaatggca	11760
caatctcgcc	tactgcaac	ctccagctcc	cgggttcaag	caattctctt	gcctcagcct	11820
cctgagtagc	tgggattaca	ggtgaccgcc	accacacca	gctaattttt	tttttatttt	11880
tagtagagat	gggatttcgc	catgttggcc	aggctgatct	caaactccca	aactcaggtg	11940
atccgcctgc	cttggcctcc	caaagtgtg	ggattacagg	catgagccac	tgcgcccgcac	12000
cgattcttga	gttttttatt	ttttttttga	gacggagtct	cgctgtgacg	cccaggctgg	12060
agtgcagtgg	tgcgatctcg	gctcactgca	agctccgcct	cctgggttca	cgccattctc	12120
ctgcatcagc	ctcctgagta	gctgggacta	caggcgccca	ccaccatgcc	cggctaattt	12180

tttgtat	tttt	tagtagagat	gggggtttcac	cgtgttagcc	aggatggtct	cgatctcctg	12240
acctggtgat	ccaccgcct	cagcctccca	aagtgctggg	attacaggcg	tgagccacca		12300
caccagccg	attcttgagt	tttaaaaaat	ctatcaagca	tgatcatctt	aatctctcca		12360
ttcattcatt	cactcactga	atatecttct	ttttctttct	ttctttcttt	cttttttttt		12420
ttgagacaga	atctcctttt	gtcaccagc	ttggagtgc	gtgatgcagt	ctcagctcac		12480
tgcaacctct	gcctcccaga	ttcaagtgat	tctcctgcct	cagcctcctg	agtagttggg		12540
attacaggag	cgaccacca	cacctggcta	atTTTTgtat	ttttagtaga	gatgggggtt		12600
cgacatgttg	gccaggctgg	tctcgaactc	ctgacctcaa	gtgatccacc	cgcttggcc		12660
tcccaaagcg	ctgagattag	aggcgtgagc	gaccacgccc	agacgaatac	ccattttcta		12720
gggtgtcata	agccaggccc	tgttctggga	atagaatcag	gccattccct	ggtggagctc		12780
ttcttctagt	ggaggacaaa	gttacaacc	cagacattca	caacgaggag	caatgctgct		12840
gtaatggaga	cagcctcagg	cactggggcg	tccctggcac	agcctgagtc	agagaaagct		12900
tcttagagag	gtgagacctg	gtagaagggc	gggatttccc	aaaggagaga	ccagattttc		12960
aggcaggagg	aagtaatgct	ctctccctca	tttacccttt	caaaaaatac	tttacagagc		13020
atctttgtgt	gccaggcgtg	gctctactca	ctggggatat	agagaaagca	gggaaagaac		13080
aaacaaacaa	acaaaaaagt	tcctttcctt	atgggattta	caccgggagg	aagacattaa		13140
acaaaatata	taagcatatg	atagactggg	cacgatgcct	catgtctgtg	atcctagtaa		13200
ggcgggcgga	tcacctgagg	tcaggagttt	gagaccagcc	tggccagcgt	ggcaaaaccc		13260
catctctact	aaaaaatata	aaaatcagct	gggcatggtg	gaggcgctg	taatcccagc		13320
tactcggaag	gctgaggcag	gagaattgct	ggattccggg	aagtagaggc	tgcagtgagc		13380
ccagatcgct	ccactgcact	ccagcctgga	tgacagaggg	agactctgtc	tcaaaaaaaaa		13440
aaaaaaaaaa	aaagaagaca	agaatcttca	agattcaaca	acagcaacaa	catgttatag		13500
tctttactgg	actcttacag	aaactttcac	cagagttttt	aatgttgtgt	gtgggggttc		13560
acctgcatca	gaattcctag	agtgttgct	tttaaaagca	cattccccag	cctttctgca		13620
gacctactca	gtgacgatct	ctctgatgcc	tcaaagtgtc	gcctactaaa	ttaattcctc		13680
aggtgatcct	tttgcaaagt	taagtttgag	aatgggctct	gcggccgggc	gcagtggctc		13740

acgcctgtca	tcccagcact	ttgggaggcc	aaggcggggtg	gatcacgagg	tcaggagatc	13800
gagaccatcc	tggctaacac	ggtgaatccc	cgtctctact	aaaaatacaa	aaaaattagc	13860
tgggcgtggt	ggtgggtgcc	tgtagtccca	ggtactcagg	aggctgaggc	aggagaatgg	13920
catgaacctg	ggaggtggag	cttgcaatga	gccgagatcg	tgccactgca	ctacagcctg	13980
ggtgacagag	cgagactcta	tctcagaaaa	aaaaaaaaaa	gagagaatgg	gctctgcagg	14040
agacaagggg	accagcggga	ggacattctg	agccaaagag	gtagagtctt	ttgagatcag	14100
cagggatgat	cctcccgtac	aaacccaaga	aaccagcag	ggcagatggt	gggcaaaggc	14160
ctagaggcag	ggagtgtagg	gtggtgtgtg	tgctgttgt	ggctcacagc	actctccac	14220
agttcagcag	gcaccactta	atattaccaa	tgaacaccaa	ctctgtgcca	agccttgagc	14280
taggtacggg	gctaacaaca	cagcaaacag	aaacagccct	gattattatt	attattatta	14340
ttattattat	tattattatt	attattatgt	atttatctat	ttgagacaca	gtctcgctct	14400
gtcgcccagg	ctggaatgca	gtggagcgat	ctcagctcac	tgcaacctct	gcctcccggg	14460
ttcaagegat	tctcctgcct	tggcctccca	agtagctggg	actacaggca	tgtgccacca	14520
tgtcctacta	atTTTTatat	tgctagtaga	gatggggctt	cgccatgttg	gccaggctgg	14580
tcttgaactc	ctgacctcag	gtgatctgcc	cacctcggcc	tcccaaagtg	ctgggattac	14640
aggcatgagc	caccgcaccc	agccctcaac	aaatatTTat	gtagcctcaa	tgaggtaggc	14700
agtgttactg	tgtcttagcg	aacaaagcag	acccctgcct	tagggagctc	acaggcagaa	14760
agcagatagt	cacacagata	gatgtaaatt	actaagaata	aaagtgccag	gaagggtgctg	14820
tccatggtga	ccaaggggtg	gtaagagagg	catctgaccc	agtttaaaaa	gtcaggcgag	14880
gcctctatga	agtgatgctt	gagtcaagg	ctaaaggggtg	tttgggagac	aactaggagg	14940
gaaggggagg	ggagagcttt	acaggaagac	ctaacggcac	atccagaggc	cctgagggtgg	15000
gagggaggac	aatgagtgtc	aggccagggt	ggctggacca	tggagcctgg	gagagagaag	15060
aacaacctgc	agtgtcagtc	tcagcctggc	tctgcaagtc	atgtggaata	aaatcttaac	15120
acagagggag	cagttaaagg	gtttacaagc	ataggggaga	catgacctgg	tttattttatt	15180
tttaaattgg	ctcctgtgcc	tgctgagtag	agaatgcatt	agaaagggca	gccgtccatg	15240
tagagggaca	agtgtggaag	ctgtgacagc	agcttagtct	tgggccccct	ccctggggggg	15300

```

ccgaggcagg aaaaggtaga gaagggaccc tagctgaaag ccaggtgtgc tccctggact 15360
ggcagcaccc atgtcaccca gaagcttttt acacataacg attctcaggt cccaccccag 15420
atztatagag ttagaaaatc tggcagtggg acccagcaat ctgttttacc aaaccctcta 15480
gggaattccg gcttagaggc taagagcaac cagattctag agctggactg cttgggtttc 15540
atctctgggt ctgtccttta cctgctgtgt gacttggggc aagttactta acgtctctgt 15600
gctagtctcc tcttctgtaa aatggaaacg atagcagggt tttctggaaa cagcatatga 15660
taagctatct aaaaaaaaaa aagaagaaaa aaagagctaa gtgtttgttg aataataaat 15720
aaaccctcca ggctatgggg agtcagagaa aattaagcca aggacagggt aggagggtgg 15780
ccattttcct ctgtctagcg attctcatcc tttcctttct tgggtgctgt gtctcttggg 15840
agcatttcct tatcgctgtg taaggtctaa ctgcctctgg ctctttcttt ctcctttcca 15900
cagcgggtgc ggatgggccc ctcttcctct cccatcccct ccccttcccc tagtcccacc 15960
gacccaagc gctgcttctt cggggcgagt ccaggacgcc tgcacatctc cgacttcagc 16020
ttcctcatgg ttctaggaaa aggcagtttt gggaagggtg gattcctggg gttctggggg 16080
aaagggagga tgtctgtggg aaggtcagat ttctggttct tagggaggaa gtgggggtgg 16140
gaagagactg ggctcctgca tcttcaaata tggttagggt gggccgttca ggttcctgga 16200
gaggagaggt ttacagatgt ggacactctc cttgagggga cgggcggcaa gtcagggtcg 16260
tcagtcctt aagagatgga ggaagggcct gggatcccg ttcctgcgt cccttaggga 16320
gggggcagg cctgtaccac tgggttccca acatggactg gcccttttg aactgtgcgc 16380
ataggtgatg ctggccgagc gcaggggctc tgatgagctc tacgccatca agatcttgaa 16440
aaaggacgtg atcgtccagg acgacgatgt ggactgcacg ctggtggaga aacgtgtgct 16500
ggcgtgggg ggccgggggtc ctggcgggcg gcccacttc ctcaccagc tccactccac 16560
cttcagacc ccggtaaagga tggagggggc ggaggctgtc ctccggggc tgccttatcc 16620
agttctggac atctgcgttg ggattctgag tttagggcga ggcaagagaa ctttgtgctc 16680
tctgagtggg cgaggccagg cggattgtct cctcaggggg cgtggccggg ggggggtcct 16740
tggggggcgt ggccaggcga agggactcat cggggggcgt ggccaggcgg aggggctcaa 16800
cggaggcgag gccgggtgga ggggctctc gggggcgtgg ccaggtggag ggactcatcg 16860

```

```

ggggcggtggc caggcagagg ggctcttcgc gggcggtggt caggcggatg aaatctttgg 16920
gggggtggtt tagaggggcg ggctttgtca ggcgatggga tcattaatag gcgtaggccag 16980
gcagattggc tccttggggg cgaggccagg cagacgagat tatgaatgag cgtatccagg 17040
caggtagatt cttcggaggg cgtggtcggg cggatgagct cctcgggggc gtggccaggc 17100
ggtgagttcc tcggtggcat ggcctggcca ggtgaatggg tcctgcggag gtgtcgtgaa 17160
gcggttgagt tccttggggg cgtggccagg tggatgggct cttgggggga gtggccagat 17220
gcctgtttcc ctggggagct tggctcttag tggctgtagc cagtgtctctg gaattttcag 17280
caaaggggca cagtggagga gggcgccttc ctagtgggcc tgcccagaat tgggctccga 17340
gtgacggggt catcactttt ggattctgac tgaaggacac atcagaaaca ggacattatt 17400
tccttaggat tgcgacttag gggcagagag tcagaacctg caagatttta agagggcggtg 17460
actttacttc caggggctcc gaatgagagt ggccagccac ctggattaaa atatatgtat 17520
gagcaacttt gattcctttt tttttttttg agaaggagtt agctcttctc cccaggctg 17580
gagtgcaatg gcgcatctc ggctcactgc aacctccgcc tcccgggttt aagcaattct 17640
cccgtctcag cctcctgagt agctgggatt acaggctccc gccaccacac tcagctgatt 17700
tttgatattt tagtagagac cgggtttcgc cacgttggcc aggctggtct ggaactcctg 17760
acctcaggtg atccaccgc ttcggcctcc caaagtgtg ggattacagg cgtgagccac 17820
cacgccagc tgcaactttg attcttagta ggaagccaga attgcatctg tgtgtgagtg 17880
gctgtggaag gagatttttg tgttcccga tttcgagcga atggtgggct tcagtcttca 17940
attctgagaa ggcggggcca gaacacgtgg tctgatagtt ggcggtggtc tggcgggtgg 18000
agattctgag gtagcaggat tagcacctta gggccctccc agggatgtgg ctaggtgctc 18060
tgaatttctg gttgggtgca tctggaacct tccacgtctg tcctgagtga tcaggaaaga 18120
aattctccta ctctgggtag atggatcccg cctctaagcc catgcacttc tccgcaggac 18180
cgctgtatt tcgtgatgga gtacgtcacc gggggagact tgatgtacca cattcaacag 18240
ctgggcaagt ttaaggagcc ccatgcagcg tgagtctcgg ccaacagaga atggtcgggg 18300
tggtggaagg gggcaggatc cagccactga ccttctgacg tccccacca cccgtcctc 18360
caggttctac gcggcagaaa tcgctatcgg cctcttcttc cttcacaatc agggcatcat 18420

```

ctacaggtga gcagccccag gaatttccgt ggaggaaatc acgcccctgg aaggaaggg 18480
atttgaatat gtggctctag actgctgaac tcaacacttc ttgcaattcc tgccccacac 18540
ccctgcatcg tccagggacc tgaagctgga caatgtgatg ctggatgctg agggacacat 18600
caagatcact gactttggca tgtgtaagga gaacgtcttc cccgggacga caaccgcac 18660
cttctgcggg accccggact acatagcccc ggaggttaacc ccaaccctgc tgctctggtc 18720
acgctttgag atcccttaga ggggtgtagct gatgggccag tattcaccac gggtgaggcc 18780
tgaccctcag accttgatc gagttgtggc cttcttacac agccagtcgt tcctccagcc 18840
tccagcacag gtgagcttgg cactgagcct gccaggtggg cccagctggg tctctaaata 18900
ggtaaggtgg gcagcacctg tgggtgaatg ttccaggaga gtgggaccag ctgtaggaa 18960
ttccaagtag gacctgacct tggatccttc tgagaagggg cagacgattt ctagtgtact 19020
ctgagtgggt gtggcctgtc ccctgccaac actgaacatg tccggactat cttctgaata 19080
ctttaaactg ggcagggctc tccctggagt attcagttgg atggaagctt atttcctgtg 19140
ttgtacgtgt ttctctgatg taagtgtact ggacttctgt gctgcatttt tcaagagggc 19200
aggatcagct gggcgcggtg gctcacacct gtaatcccag cactttggga ggctgaggca 19260
ggtggatcac ttgaggtcag gagtttgaga ccagcctggc caacatgggtg aaacctcatc 19320
tctaacaaaa ttacacaaat tagccgggcg tgggtggcatg cgctgtaat cccagctatt 19380
cgggaggctg aggcaggaga atcgcttgaa ccggggaggc ggaggttgca gtgagctgag 19440
atcacaccac tgcactccag cctgggtgac agagcataac ttcataactt catctcaaaa 19500
aaaaaaaaaa aaaaaagccg ggtgcagtgg ctcacacctg taattccagc acttgggagg 19560
ctgaggcggg cggatcacia ggtcaggagt ttgagaccag cctgactaac atggtgaaac 19620
tccatctcta ctaaaaatac aaaaattagc caggcgtggt ggcgggtgcc tgtagtccca 19680
gctacttggg aggtgaggc aggagaatta cttgaacccg ggaggtggag gttgcagtga 19740
gctgagatcg cgccactgca ctccagtctg ggcaacagag tgagaccctg tctcaaaaaa 19800
aaaaaaaaaa agaaaaagaa aaagggcagg gtgagatccc taaggttctg ggagagcaga 19860
tgctgtccta tgagtatttt aagtgggtgg ggtattaccc gactttgtta aaggggtggg 19920
gctgatgttc tgaatgtacg tatagatgga taaagcacat gcctgtagtc ccagctactt 19980

gggaggatgt gcctgactcg tgcccaaata atcaatgtca gtgatcacia aacctggctg 20040
 gtaatcagaa tcatctgtag aaaatttgaa aactgaggcc agacatgggtg gctcatgcct 20100
 gtaatcccag cactttggga agctgaggca ggcagatcac ttgaggtcag gaattcaaga 20160
 ccagcctagc caacatgggtg aaaccccgtc tctactaaaa atacaaaaat tagctggaca 20220
 tggatgatgtg tgctgtcaa ccagctact caggaggctg aggcaggaga atcacttgaa 20280
 ccaggagggt ggaggttgca gtgagccaag attgcaccac tgcactgcat cctgggctac 20340
 agagtggagc tccatctcaa aaaagaaaaa agataagaaa atttgaaaac tacacacata 20400
 ttctgactc tgacacaaat attctaggtg ggtggaacca gtgacttggc cgtaggttag 20460
 tctttctatt tgaggccaaa tgaatgtttg aagtaggtat gctttgtttc cagaatattc 20520
 caaaagttag atcgctggcc aaaatattca gagtggaggc tgggcgtggg ggctcactcc 20580
 tataatccca gcactttggg aggcggaggc agccaattg cttgagtccg ggagtttgag 20640
 accagcctgg gcaacatagt gaggacctat cttcactaaa agtgcaaaaa ttagccaggt 20700
 gtggtgggtg acacctgtag ccacctact tgggaggctg aggtagaaga attacctgag 20760
 cctgggaagt tgaggctgag tgagccgtga tcacactact gtgctccagc ctgggcaaca 20820
 gagtggagcc ctgtcaaaaa aaaaaaaaaa aaaaaaaaaa acgaaacaaa aatcacctg 20880
 atgaaataaa tattcagagt gggaagagct tgtgctgaaa gcacttaacg tgggtagcgc 20940
 tcccaggggg tgaggccaga ggggtcctag gcttcctaaa gaacgcatca tgattccctg 21000
 ccttcacct ccctagatc attgcctacc agccctatgg gaagtctgtc gattggtggg 21060
 cctttggagt tctgctgtat gagatgttgg caggacaggt aagggaagggt ggggagaagc 21120
 tggcttggct aaaagagaca gagaggggca cctggatctc aggaggagcc agttagaaag 21180
 gagccagaaa ggttgtgctc gaatagcgt gtccatgggt ctgaagtgtt gtcttaatgt 21240
 agaccagggtg ttttgttttg ttttgttttg tttgttctgt táccatggat tctttctccc 21300
 tagatggtaa agtagcagtc tggttaagcc tatggatccc ttctcagaag aatgtttttc 21360
 aatgcacaaa atagaataat acatacgagc aaaaccaagg ttcaaatacct cactttgcca 21420
 cttactggct gtgtcagctt agacaattac atacattcta aatcagcttg attggattcc 21480
 tggactgctg agtgtactac aactaaaaaa attggttacc acactcttga tcatcttctt 21540

```

agctggctat ggtagtgggc acctatagtc ccagctactg gggaggctga ggcaggaggg 21600
tcacatgagc ccaagaactc aaggttacac tgaactatga gtatgccact gtgttcacgc 21660
acaggcgaca gagcaagacc ccatctcaaa agaacaaca aacaaaagaa atcaatcatt 21720
ttgaaagata gtcacaaaaa cttttaaaat ttaattgaat ctaacaacca actaaattca 21780
atgtatacag ttgtctaaat atttaaaatt ggaaaatgga catatgtgca atttcttatt 21840
aattcattaa gtagtaagtt ctaatggtag taaagtaaaa aggagctcta acagtaattt 21900
tgatgtagca atgactaata atttggaata tctgcaactc tcatgtgatg agaaaatacc 21960
tgtgattact attgataatg aagccacaag cactgctgct gcctgcattc ataactgaag 22020
ggaatgctaa attttagtta gaagttaaaa aaaaatttgg ccggacatgg tggctcacgc 22080
ctgtaatcca agcacttttg gaggccgaag tgggcagatc acttgaggtc aggagtttga 22140
gaccagcctg gccaatatga tgaaacccca tctctaaatc tttgccttgg tatcattttt 22200
tgtaacctca gaagactgtg aactactcat ccaaccagga gaatgctttt aggggtgtttc 22260
ctgcagtttt tctctcttc tatttaactg acatgttgca taattaacag cctgctgatt 22320
tacatagcag ataaagagag gcagaatagt acagagatgc acagatctga ggcatccgag 22380
ataggaaatg agagaacctg agaaggagag agatcaagct ttggtgggtt ggtctgatct 22440
ctcctgaggg tgtggtcagg tgtgcatgtg gggcgtgtga tgggtcaggc atgttcccgg 22500
tggggtgagg aggggtgtgga aggtttgggg aaaggcagtt gggcatgtcc ctgactctct 22560
atcccccca ctttgatagc ctcccttcga tggggaggac gaggaggagc tgtttcaggc 22620
catcatggaa caaactgtca cctaccccaa gtcgctttcc cggaagccg tggccatctg 22680
caagggggtg agagccccct gactcccagc ttctccaggc tcacaaccac acacccatt 22740
gctgtctctg tgcctattag aaaaatgctc ccattcctga agtcacttta ctccatctg 22800
ttggaaaagt tgatatgatg cataggtttt gttagaacaa tgatttccag ccctgttgcc 22860
acgaggcctg gagatggcct ctgtctcatc cttctctgtg actcccactc cccagctccc 22920
tgcttgacag aagtgtgaa agtccagggt gtctgtctgt ctagaactgg gtgggtcagg 22980
taaaccacaac ttctgcagct tttcttctg tgtgaacttg ggtgagtcac caaaactttg 23040
tgagcttaac tctcttcagg ggttatggag ttgacacaga agaaagcacc tggcccatag 23100

```

cagattttca gcccatgtca gcaccttctg cgtctagctg ctctctctgc atctccctga 23160
 cagtctctct ggtttctgtc tcatgcctcc cctccatctg catacgatgg ggctctctgt 23220
 gtttcttctt tttctctgtg tctccttctg catctctgtc tacacttttg ggcctttgtc 23280
 caacccccct acccccctac tctgtcccct cctgtgtcca ctctcataca cacacgctac 23340
 atctcaccct cctctcctgc tggctttctg tctccctttt tctctgggtc tctgtcccca 23400
 tatttggtct ttattcctcc ctctgggtgt gtgtttcctg ggtctctatc cttctctctt 23460
 tctgaatctc tgtccccctg ggtctcctct gtctcctccc ttctctgagt ttctgccttc 23520
 ttacctgggg tctctgtacc accctctgaa tttctatttc cccttttctc tgggtctgca 23580
 acctctcttc ccccatctcc tccctcttcc ccttcactct ctctaccctt ccctccctcc 23640
 ccctaccgac ctccctctgt ccttcactct ccccttccct ccctccccct acccttccct 23700
 ctccccgtcc ctctctcccc ttccctctct cccctaccc cttttccctc tctcttctc 23760
 catctccctc atgatttggt ctgtttctct gtgtgtccct gggctctctgg gtatgaattt 23820
 catctgctat cattttcatg tctcctctcc ttcttctgt ctctctctct ctctctctca 23880
 ctcaactctca ccctctgtct ctctctctct ctgtccctct tctctctct ctctctctg 23940
 tctctctctg tctcgtctc tgtctgtctc cctcctcctc ctctccctc ctctcctcc 24000
 tctcctcct cctcctcctc ctctcctcc ttcttcttct tcttcttctt cttcttcttc 24060
 ttcttttctt ctctctctct ctcttctt ttcccttct cctccattt gcctgtttcc 24120
 cctggctggt cttatctctc cggatctcat gcctgtgtct cttgggtcct ccatctgcct 24180
 gtctctgtcc ctctttctct gggctacct gtccggcact ctgtctgttt gtctgtctgt 24240
 ctctctctgt gtttccaca gttcctgacc aagcaccag ggaagcgct gggctcagg 24300
 cctgatgggg aacctaccat ccgtgcacat ggctttttcc gctggattga ctgggagcgg 24360
 ctggaacgat tggagatccc gcctccttcc agaccccgcc cggtcagtca ccctccaggc 24420
 aacaaaaacc tggtcctga aggggtgggg ttcccttggg cctcaatata cctgtatgtg 24480
 ggggtgggg tccctctgca gagcccccg cccccaacaa aaggaggtgc agacaccatg 24540
 aagcatgaat agagattctg caggagacag gagatgagac tggggtacac agagggacac 24600
 ccgaggagcc ctcgagctg cttaacttcc cctccccac gtctccaca gtgtggccgc 24660

```

agcggcgaga actttgacaa gttcttcacg cgggcggcgc cagcgctgac ccctccagac 24720
cgcctagtcc tggccagcat cgaccaggcc gatttccagg gcttcaccta cgtgaacccc 24780
gacttcgtgc acccggatgc ccgcagcccc accagcccag tgcctgtgcc cgtcatgtaa 24840
tctcaccgcg cgccactagg tgtccccaac gtcccctccg ccgtgccggc ggcagcccca 24900
cttcaccccc aacttcacca cccctgtcc cattctagat cctgcacccc agcattccag 24960
ctctgccccg cggggttcta gacgcccctc ccaagcgttc ctggccttct gaactccata 25020
cagcctctac agccgtcccg cgttcaagac ttgagcggag cccgatattc tccctgacct 25080
tagcgttctg gactctgccc caatcgggtc cagagaccac accactaacc atccccaaact 25140
ccatgggggtt cgagactcca tcttggtagt tctgtgcctc ccccagacc ccgcccctgg 25200
ggaaatagcc tcacgggggtt ggctgttcca gactcagggt ccagaacagc cctcggcctc 25260
cgaggctccc cgccctccact ctagttctag atgagtggga g 25301

```

```

<210> 4
<211> 18
<212> DNA
<213> Homo Sapien

```

```

<400> 4
ctgcctttgg ctcttcct 18

```

```

<210> 5
<211> 20
<212> DNA
<213> Homo Sapien

```

```

<400> 5
taggagtctg caccctagt 20

```

```

<210> 6
<211> 20
<212> DNA
<213> Homo Sapien

```

```

<400> 6
ctggattcct gggctctgaag 20

```

```

<210> 7

```

<211> 18
 <212> DNA
 <213> Homo Sapien

 <400> 7
 cagcctccac cctcctga 18

<210> 8
 <211> 20
 <212> DNA
 <213> Homo Sapien

 <400> 8
 cgctctctct ttccaatttt 20

<210> 9
 <211> 19
 <212> DNA
 <213> Homo Sapien

 <400> 9
 gaggaggaga accaggtgt 19

<210> 10
 <211> 20
 <212> DNA
 <213> Homo Sapien

 <400> 10
 caaggcagga ggaaaagata 20

<210> 11
 <211> 18
 <212> DNA
 <213> Homo Sapien

 <400> 11
 atttcccgga acccagac 18

<210> 12
 <211> 20
 <212> DNA
 <213> Homo Sapien

 <400> 12
 catgaaatgc tcctgtgagt 20

```

<210> 13
<211> 18
<212> DNA
<213> Homo Sapien

<400> 13
acaagtcgct tgggtcag                                     18

<210> 14
<211> 20
<212> DNA
<213> Homo Sapien

<400> 14
gcttggaact cttgattgct                                     20

<210> 15
<211> 20
<212> DNA
<213> Homo Sapien

<400> 15
ccactaggac cctcagatca                                     20

<210> 16
<211> 18
<212> DNA
<213> Homo Sapien

<400> 16
acctccagca ccaaggat                                       18

<210> 17
<211> 20
<212> DNA
<213> Homo Sapien

<400> 17
cacacacaga tggagatggt                                     20

<210> 18
<211> 20
<212> DNA
<213> Homo Sapien

<400> 18

```

cttccaatgt ctttgccctct 20

<210> 19

<211> 20

<212> DNA

<213> Homo Sapien

<400> 19

atgtgtgggg aattgaagac 20

<210> 20

<211> 20

<212> DNA

<213> Homo Sapien

<400> 20

ttgggagcat ttccttatcg 20

<210> 21

<211> 20

<212> DNA

<213> Homo Sapien

<400> 21

aaatctgacc ttccacaga 20

<210> 22

<211> 20

<212> DNA

<213> Homo Sapien

<400> 22

tcccttaaga gatggaggaa 20

<210> 23

<211> 20

<212> DNA

<213> Homo Sapien

<400> 23

ctcgccctaa actcagaatc 20

<210> 24

<211> 20

<212> DNA

<213> Homo Sapien

<400> 24	
gtctgatagt tggcgggtggt	20
<210> 25	
<211> 19	
<212> DNA	
<213> Homo Sapien	
<400> 25	
agaaggtcag tggctggat	19
<210> 26	
<211> 19	
<212> DNA	
<213> Homo Sapien	
<400> 26	
atccagccac tgaccttct	19
<210> 27	
<211> 18	
<212> DNA	
<213> Homo Sapien	
<400> 27	
cagtgccaaag ctcacctg	18
<210> 28	
<211> 20	
<212> DNA	
<213> Homo Sapien	
<400> 28	
gggaagagct tgtgctgaaa	20
<210> 29	
<211> 20	
<212> DNA	
<213> Homo Sapien	
<400> 29	
ctaactggct cctcctgaga	20
<210> 30	
<211> 20	

```

<212> DNA
<213> Homo Sapien

<400> 30
ggcatccgag ataggaaatg 20

<210> 31
<211> 20
<212> DNA
<213> Homo Sapien

<400> 31
tcaggaatgg gagcattttt 20

<210> 32
<211> 20
<212> DNA
<213> Homo Sapien

<400> 32
ttctctgggt ctacctgtcc 20

<210> 33
<211> 20
<212> DNA
<213> Homo Sapien

<400> 33
gtgtctgcac ctcttttgt 20

<210> 34
<211> 22
<212> DNA
<213> Homo Sapien

<400> 34
cagacaccat gaagcatgaa ta 22

<210> 35
<211> 20
<212> DNA
<213> Homo Sapien

<400> 35
ttagtggtgt ggtctctgga 20

```